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STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

June 29, 2000

Mr. Steven H. Wisness, Director
Office of Site Services
United States Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

Dear Mr. Wisness:

Re: Nonradioactive Air Emissions Notice of Construction (NOC) for the Central Waste Complex Approval Order

Enclosed is Order No. DE 00NWP-002. If you have any questions concerning the content of the document, please contact Jerry Hensley at (509) 736-3017. The enclosed Order may be appealed. The appeal procedures are described in the Order.

Sincerely,

Michael C. Wilson, Manager
Nuclear Waste Program

MW:JH:sb
Enclosure

cc: Richard Engelmann, FHI
Cynthia Girres, FHI
Rodney Greenwell, FHI
Richard Gurske, FHI
Russ Johnson, FHI
Larry Kamberg, FHI
Kirk Peterson, FHI
Dan Saueressig, FHI
J.R. Wilkinson, CTUIR
Pat Sobotta, NPT
Russell Jim, YIN
Mary Lou Blazek, OOE
[redacted] Record: CWC

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A NONRADIO-ACTIVE AIR EMISSIONS NOTICE OF CONSTRUCTION APPLICATION FOR THE CENTRAL WASTE COMPLEX FOR STORAGE OF VENTED WASTE CONTAINERS FOR THE DEPARTMENT OF ENERGY-RL	NOC APPROVAL ORDER **NUMBER: DE00NWP-002**

To: Mr. Steven H. Wisness, Director
Office of Site Services
United States Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

FINDINGS:

On April 27, 2000, the United States Department of Energy, Richland Operations Office (USDOE-RL), submitted a Notice of Construction (NOC) application for the Central Waste Complex (CWC) for storage of vented waste containers, located at the Hanford Site 200 West Area.

In relation to the above, the Washington State Department of Ecology (Ecology), pursuant to Revised Code of Washington (RCW) 70.94.152, Washington Administrative Code (WAC) 173-400, and WAC 173-460 makes the following determinations:

- The facility, if operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC and 173-460 WAC, and the operation thereof will not result in ambient air quality standards being exceeded. Information submitted in the NOC shows emissions will be below the threshold levels contained in WAC 173-400-110(5)(d), allowing exemption of the proposed activities from New Source Review under WAC 173-400-110.

- The proposed project, if constructed and operated as herein required, will provide all known, available, and reasonable methods of emission control.

1. LAWS AND REGULATIONS

All proposed activities associated with the storage of vented containers at the facility by the USDOE-RL, referred herein to as the Permittee, shall comply with all requirements as specified in:

- RCW Chapter 70.94, Washington Clean Air Act;
- WAC Chapter 173-400, General Regulations for Air Pollution Sources; and
- WAC Chapter 173-460, Controls for New Sources of Toxic Air Pollutants.

2. **EMISSIONS**

   Operation of the CWC facility, and activities associated with the storage and treatment of waste, will generate the following estimated emissions of criteria and toxic air pollutants:

   - Volatile Organic Compounds < 2.0 tons/year

3. **BEST AVAILABLE CONTROL TECHNOLOGY (BACT)** -- WAC 173-400-113 requires the use of BACT to control emissions. Since emissions will be below the threshold levels contained in WAC 173-400-110(5)(d), no technology controls are warranted.

4. **BEST AVAILABLE CONTROL TECHNOLOGY FOR TOXICS (T-BACT)** -- WAC 173-460-040(4)(b) requires the use of T-BACT to control toxic emissions. Since all emissions resulting from the proposed operations are in compliance with the WAC 173-460 Acceptable Source Impact Levels (ASILs), no additional controls are warranted.

ADDITIONAL FINDINGS

The CWC stationary source is located in the 200 West Area of the Hanford Site. CWC provides storage and treatment for dangerous, mixed, radioactive, and *Toxic Substances Control Act* (TSCA) *of 1976* waste generated on or off the Hanford Site. Treatment includes absorption and solidification of free liquids, neutralization of corrosive materials, and stabilization and encapsulation of solid waste matrices.

The CWC stationary source currently consists of the following diffuse and fugitive emission sources:

- 2401-W Waste Storage Building
- 2402-W Series Waste Storage Buildings
- 2403-WA through WC Waste Storage Buildings
- 2403-WD Waste Storage Building
- 2404-W Series Waste Storage Buildings
- Flammable and Alkali Metal Mixed Waste Storage Modules
- Waste Storage Pad and Waste Receiving and Staging Area

There could be up to 88,500 emission units (i.e., containers) within these seven (7) diffuse and fugitive emission sources.

Pre-engineered steel structures of the types employed at CWC preclude the possibility of establishing and maintaining a negative pressure within the structures because all the structures have numerous in-leakage points, such as frequently opened doors, as well as the assembly of

structural components. These components were not designed to be air tight, but rather to protect stored containers from the weather. A negative pressure cannot be established and maintained within the structures, so there is no single point of controlled exhaust.

1. PROCESS DESCRIPTION

All waste accepted for storage at CWC is packaged in approved containers (U.S. Department of Transportation and/or U.S. Department of Energy), unless alternate packages are dictated by the size, shape, or form of waste (49 CFR 173) (e.g., boxes). Exterior surfaces of 55-gallon metal containers are either painted or galvanized in accordance with specifications.

Before liquids are accepted for storage, the liquids are: (1) bound by sorption, or (2) sealed in leak-resistant containers (e.g., labpacks or overpacks), and (3) surrounded by sorbent material in a 55-gallon container, or other approved container, to facilitate eventual treatment of the liquid. The labpack/overpack configuration results in a smaller container(s), packaged with an appropriate sorbent to sorb at least twice the maximum amount of liquid potentially present. Waste with the potential to form condensate during storage contains sufficient sorbent in the bottom of the container to sorb any condensate formed.

Gas generation is controlled to prevent pressurization exceeding 1.5 atmospheres, and combustible gas concentrations exceeding the lower explosive limit for up to twenty (20) years of storage. To prevent the potential buildup of gases, vents such as NucFil®, vent clips, or other approved devices are used.

The majority of the vented containers within the CWC are provided with a NucFil®; however, vent clips have been used in past operations. Some older containers could even have a "permeable gasket." Vent clips and/or permeable gaskets are no longer installed on newly generated waste.

A vent clip, a non-filtered device with gaps approximately three (3) microns in size, was designed to prevent complete sealing between the drum and the drum lid. Most vented containers are fitted with NucFil® filter vents designed to provide high-efficiency filtration of particulates. These filters include a porous carbon/carbon composite of non-activated carbon fibers that restrict particulate releases and provide 99.95 percent efficiency per manufacturer specifications. The same is not true regarding gaseous/vapor contaminants. These vents are designed to allow air to flow in or out of the container at any time there is a pressure differential relative to ambient conditions, resulting in very low volume, nearly continuous flow.

Before receipt at CWC, all 55-gallon containers are closed by the on-site generating unit or off-site generator, by means of a neoprene gasket, steel lid, locking ring, locking ring bolt, and a tightened lock nut, or by other available methods to meet applicable United States Department of Transportation packaging requirements. Upon receipt, each container or group of containers, is inspected for damage, proper closure, marking, and proper accompanying documentation, before acceptance by CWC operations personnel.

The container packaging, module construction, and container handling are designed to maintain containment of the waste, provide retrieval capability of damage-free and contamination-free containers, limit storage intrusion, and limit human exposure to dangerous waste and hazardous materials. Retrieved containers from the Low-Level Burial Grounds (LLBG) can be assayed, x-rayed, and the headspace can be analyzed, for volatiles and semivolatile compounds.

Vented containers primarily contain mixed and/or Transuranic (TRU) waste. All TRU waste to be retrieved from the LLBG and transported to the CWC, is considered to be newly generated and will be vented. Before August 1998, there was no administrative way to distinguish a vented container from a sealed container. Since August 1998, all vented containers accepted at CWC have been flagged in the Solid Waste Inventory Tracking System (SWITS) database, enabling the containers to be tracked. An unknown percentage of other containers, while not specifically vented, are not considered sealed containers. Process knowledge has this number conservatively bounded by twenty (20) percent of the total current inventory.

2. VENTILATION AND EMISSIONS CONTROL SYSTEMS

The CWC structures (diffuse and fugitive emission sources) were designed and constructed to protect waste containers (emission units) from the weather, not to provide containment for potential emissions. As such, the original purpose of the wall and roof exhausters was to provide for exhausting the air from contamination due to fork lifts and other internal combustion vehicle emissions, seasonal heat buildup, personnel (worker) comfort, etc.

Emissions from CWC actually emanate from vented containers, which Ecology has identified as individual emissions units (diffuse and fugitive emission sources). In turn, the individual emission units are stored within structures, or on a pad.

All TRU waste containers are vented to prevent accumulation of potentially explosive concentrations of hydrogen gas. In addition, containers with organic materials (e.g., plant matter) also are vented to allow for the release of decomposition gases. Other constituents (e.g., toxic and/or radiological) can be vented on a case-by-case basis depending on the hazards present.

Containers are vented with one of three devices: vent clips, NucFil® filters, or a permeable gasket. The majority of the vented containers within the CWC are provided with NucFil® filters; however, vent clips have been used in past operations. Some older containers might even have a permeable gasket. Vent clips and/or permeable gaskets are no longer installed on newly generated waste. All three (3) of these vent devices were designed to control particulate emissions from within the containers. However, no activities are routinely conducted within CWC that could cause re-suspension of particulates. Therefore, these devices are not proposed as being required for particulate control. All potential emissions of

concern are based on the assumption that the emissions are either volatile organic compounds (VOCs), and/or volatile TAPs. There are no potential emissions from nonvolatile TAPs.

As a source of diffuse and fugitive emissions, the CWC storage structures currently have no single controlled exhaust (point of emissions). Without a single controlled exhaust point, there are no controls for emissions in place at any of the CWC storage structures.

However, it is proposed that administrative controls be implemented for VOC and/or volatile TAP emissions from the CWC stationary source. Using solid waste acceptance procedures, each container is screened against the list of regulated TAPs to verify that the total emissions of each individual volatile TAP from CWC does not exceed its associated small quantity emission rate (SQER) value. TAPs that do not have an associated SQER are evaluated to verify that the constituents are not volatile.

THEREFORE, IT IS ORDERED that the project, as described in said NOC application, and more specifically detailed in plans, specifications, and other information, submitted to the Department of Ecology in reference thereto, is approved for construction, installation, and operation, provided the following conditions are met:

APPROVAL CONDITIONS:

1. **TOTAL EMISSION LIMITS**

   A. The activities described in the NOC application will be permitted without requiring additional control technologies, provided that the total emissions from all activities will not result in exceedance of WAC 173-460 ASILs.

   B. A new/modified NOC will be required, if total emissions of toxic air pollutants exceed the Small Quantity Emission Rates, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstrations/calculations will be maintained on file at the facility and made available upon inspection.

   C. A new/modified NOC also is required if total emissions of criteria pollutants would exceed the WAC 173-400-110 thresholds.

2. **GENERAL REQUIREMENTS**

   An annual assessment of SWITS shall be conducted to document compliance that no monitoring and/or sampling systems are needed. This assessment will be reported annually beginning as part of the Calendar Year 1999 nonradioactive inventory of airborne emissions.

3. EMISSION CONTROL MONITORS

A. No sampling is required for nonradioactive air emissions because all contaminant emissions are below their respective small quantity emission rates.

B. Personal protective equipment is not required in CWC facilities because of the very low airborne levels of chemicals (documented in two [2] previous air sampling studies). The initial low levels of airborne chemicals found under "worst case" conditions are further minimized by the use of exhaust ventilation of at least four (4) air changes per hour in CWC facilities. For this reason, monitoring of worker exposure to chemicals from vented containers is not currently required under Hanford's Industrial Hygiene program.

4. MANUALS

O&M manuals for all equipment associated with the proposed activities that have the potential to affect emissions to the atmosphere shall be developed and followed. Manufacturers' instructions may be referenced. The O&M manuals shall be updated to reflect any modifications of the process or operating procedures. Emissions that result from failure to follow the requirements of the O&M Manuals or manufacturer's instructions may be considered proof that the equipment was not properly operated, maintained, and tested. Copies of the O&M Manuals shall be available to Ecology upon request.

Ecology understands that there are no O & M Manuals currently being used at the CWC.

5. INITIAL NOTIFICATIONS & SUBMITTALS

All notifications and submittals required under these Approval Conditions shall be sent to:

Washington State Department of Ecology
Nuclear Waste Program
1315 West Fourth Avenue
Kennewick, Washington 99336-6018

6. MONITORING AND RECORDKEEPING

Specific records shall be kept on-site by the Permittee and made available for inspection by Ecology upon request. The records shall be organized in a readily accessible manner and cover a minimum of the most recent sixty (60) month period. The records to be kept shall include the following:

- Evaluations of additions or changes to demonstrate compliance with the ASIL limits (for additions or changes not otherwise exempt under WAC 173-400 or –460).

7. ASIL EVALUATION

The methodology used in evaluating emissions to demonstrate potential total emissions are below the ASILs, as described in Section 7.0 of the NOC application, may be modified with Ecology's concurrence.

8. GENERAL CONDITIONS

A. **Visible Emissions**: No visible emissions shall be allowed beyond the property line.

B. **Commencing/Discontinuing Construction and/or Operations**: This approval shall become void if the proposed activities are not commenced within eighteen (18) months after receipt of this Order approving the NOC application, or if activities are discontinued for a period of eighteen (18) months.

C. **Compliance Assurance Access**: Access to the source by EPA or Ecology shall be allowed for the purposes of compliance assurance inspections. Failure to allow access is grounds for revocation of the Order approving the NOC.

D. **Modification to Facility or Operating Procedures**: Any modification to any equipment or operating procedures, contrary to information in the NOC application, shall be reported to Ecology at least sixty (60) days before such modification. Such modification may require a new, or amended, NOC approval Order.

E. **Activities Inconsistent with this Order**: Any activity undertaken by the Permittee or others, in a manner that is inconsistent with the NOC application, and this determination, shall be subject to Ecology enforcement under applicable regulations.

F. **Obligations under Other Laws or Regulations**: Nothing in this Order shall be construed to relieve the Permittee of its obligations under any local, state, or federal laws, or regulations.

Nothing in this approval shall be construed as obviating compliance with any requirement of law other than those imposed pursuant to the Washington Clean Air Act, and rules and regulations thereunder.

A two (2) month testing and break-in period is allowed, after any part of portion of this project becomes operational, to make any changes or adjustments required to comply with applicable rules and regulations pertaining to air quality and conditions of operation imposed herein. Thereafter, any violation of such rules and regulations, or of the terms of this approval, shall be subject to the sanctions provided in Chapter 70.94 RCW.

Authorization may be modified, suspended, or revoked in whole, or in part, for cause including, but not limited to, the following:

- Violation of any terms or conditions of this authorization;
- Obtaining this authorization by misrepresentation; or
- Failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provisions of this authorization to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

Any person feeling aggrieved by this Order may obtain review thereof by application, within thirty (30) days of receipt of this Order, to:

Pollution Control Hearings Board
P.O. Box 40903
Olympia, Washington 98504-0903

Concurrently, copies of the application must be sent to:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Washington State Department of Ecology
1315 West Fourth Avenue
Kennewick, Washington 99336-6018

These procedures are consistent with the provisions of Chapter 43.21B RCW, and the rules and regulations adopted thereunder.

DATED at Kennewick, Washington, this 30th day of June 2000.

PREPARED AND REVIEWED BY:

Jerry Hensley, P.E. — Date 6/30/00

APPROVED BY:

Michael A. Wilson — Date 6/30/00